SOIL CONSERVATION SERVICE NEWS

REGION 4

Comprising States of Louisiana, Arkansas,
Oklahoma and Texas, except High Plains Area

REGIONAL OFFICE--FORT WORTH, TEXAS

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DR. LOWDERMILK TO VISIT REGION 4

Dr. W. C. Lowdermilk of Washington, D. C., assistant chief of the Soil Conservation Service, will spend the period March 15-April 12 in Region 4 to present an illustrated discussion of the subject "Soil Erosion and Civilization" and to observe progress of soil and water conservation in state soil conservation districts and in Service units.

The illustrations will include 100 colored slides made from selected pictures taken by Dr. Lowdermilk during a 15 months' survey in Europe, North Africa, and the Near East.

Dr. Lowdermilk, who was chosen by the Department of Agriculture to begin a survey of the experience of older countries in the use of land as it relates to soil erosion, soil and water conservation, and torrential flood control, traveled more than 30,000 miles by train, airplane, automobile, and afoot in 17 countries of the Old World. He visited 124 areas of special interest.

His studies took him into England, Scotland, Holland, France, Italy, Egypt, Algeria, Tunisia, Lybia, Trans-Jordan, Palestine, Lebanon, Syria, and Iraq.

Entering the Western Gulf Region at Tulsa, Okla., March 15, Dr. Lowdermilk will speak there that night and visit Broken Arrow and Muskogee. Other speaking engagements tentatively scheduled will include: Stillwater, Okla., March 18, morning meeting with agricultural senior students of Oklahoma A. & M. College and night meeting in college auditorium; Konawa, Okla., March 19, night meeting; Elk City, Okla., March 21, night meeting; Abilene, Texas, March 25, night meeting; Denton, Texas, March 27, morning meeting; Temple, Texas, March 28, night meeting; College Station, Texas,

March 29, night meeting in Guion Hall at Texas A. & M. College; Nacogdoches, Texas, April 1, night meeting; Natchitoches, La., April 2, afternoon meeting at Louisiana State Normal College; Baton Rouge, La., April 3, afternoon meeting at Louisiana State University; Lafayette, La., April 4, afternoon meeting at Southwestern Louisiana Institute; Ruston, La., April 5, afternoon meeting at Louisiana Polytechnic Institute; Little Rock, Ark., April 8, address conference of district supervisors of Region 5 of F. S. A.; Conway, Ark., April 9, morning meeting at Arkansas State Teachers College; Russellville, Ark., April 9, night meeting at Arkansas Polytechnic Institute; Jonesboro, Ark., April 10, night meeting Arkansas State College, and April 11, address soil conservation district supervisors in meeting sponsored by Eastern Arkansas Young Business Men's Club.

Dr. Lowdermilk's tour of the Old World included many of the familiar scenes of Biblical history. From Egypt he passed over to the land of Goshen, into the desert of Sinai, Southern Moab, and across the Jordan to Jericho, where he found the quarrel of Cain and Abel still going on in repeated struggles between tent dwellers, shepherds and farmers.

The Promised Land, which 3,000 years ago was flowing with milk and honey, he found to be "a sad commentary on man's stewardship of the earth." A scene near Hebron in the hills of Judaea, on the road from Beersheba to Jerusalem, shows the soil washed off the slopes to bare rocks and lodged in the valleys.

From Trans-Jordan across the Syrian steppe to Mesopotamia, the traditional land of the "Garden of Eden," he found mighty Babylon a salty desolation and Mesopotamia the graveyard of 11 empires which have risen and fallen during the past 7,000 years.

The famous historic forests of the Cedars of Lebanon, he relates, became the timber supply of the treeless alluvial plains of the Nile and Mesopotamia. When the Phoenicians turned to ship building and sea trade, timber cutting was pushed up the slopes and the cultivation line followed. And the forests have retreated before the axe and hoe until only a few remnants of the forest are left.

Dr. Lowdermilk has come to the conclusion that it was on these slopes that the tiller of the soil of western civilization first encountered the hazards of slope cultivation and of soil erosion between 4,000 and 5,000 years ago. Prior to that, agriculture was confined to the flat alluvial lands of the Nile and Mesopotamia. The efforts to control erosion which began in ancient Phoenicia more than 40 centuries ago, he ranks with the discovery of fire. These efforts have reached their highest development in the United States at the present time, Dr. Loudermilk says, and upon their success or failure depends the salvation of the American way of life, experiences of the past indicate.

After 300 years of exploitation of the natural resources of a new continent, the United States has reached a transition stage between exploitive occupation and sustained conservation of its land resources, Dr. Lowdermilk says. During the past six years of a nationwide under-

taking in land conservation and erosion control, much has been learned, but much still remains to be learned.

Dr. Lowdermilk's survey, made for the purpose of studying the experience of the older countries, both ancient and modern, has produced convincing evidence of the need in this country for bringing to bear all available resourcefulness, ingenuity, and ability in solution of this problem now while great areas of good land still remain.

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TEXANS VOTE ON 22 SOIL CONSERVATION DISTRICTS

Landowners residing in 22 proposed Texas soil conservation districts will go to the polls Saturday, March 9, to vote on the question of creating these soil conservation districts for a cooperative attack on soil erosion and other land use problems.

The elections are the first to be held under authority of a state law passed in 1939. More than 22,675,000 acres are in the 22 proposed districts.

The proposed districts in which elections will be held March 9, with the approximate number of acres and the counties which lie wholly or partly in these districts, are as follows:

Western Gulf Region

Harrison County, 558,000 acres; Lavaca-Navidad (Lavaca, DeWitt and Gonzales Counties), 864,000 acres; Sulpher-Cypress (Titus, Camp, Morris and Franklin Counties), 738,000 acres; Karnes (Karnes, Bee, Goliad and Live Oak Counties), 1,296,000 acres; Hamilton-Coryel Counties, 1,228,000 acres; Central Colorado (Coleman, Runnels, Taylor and Callahan Counties), 1,168,000 acres; Concho (Concho, Tom Green, McCulloch and Menard Counties), 1,088,000 acres; El Paso-Hudspeth Counties, 1,376,000 acres; Comal-Hays-Guadalupe Counties, 960,000 acres.

Wilson County, 524,000 acres; Nacogdoches (Nacogdoches and Rusk Counties), 817,000 acres; Denton-Elm Fork (Denton, Collin, Grayson, Cooke Montague and Wise Counties), 1,520,000 acres; Bedias Creek (Madison, Grimes, Walker and Leon Counties), 832,000 acres; Martin-Howard (Martin, Howard, Glassock and Midland Counties), 1,232,000 acres; Concho-Colorado (Tom Green, Concho, Runnels, Coke, Nolan and Taylor Counties), 1,664,000 acres; Duck Creek (Dickens, Kent, and Stonewall Counties), 1,024,000 acres; Kaufman-Van Zandt (Kaufman, Van Zandt and Dallas Counties), 736,000 acres; Hays-Caldwell-Travis Counties, 848,000 acres; Bowie County, 558,720 acres.

Southern Great Plains Region

Bailey-Lamb-Hockley Counties, 1,858,000 acres; Dawson-Lynn Counties, 1,131,000 acres, and Floyd County, 647,000 acres.

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Simon E. Wolff[1] Discusses:

BUFFALO GRASS DISTRIBUTION AND ADAPTED SOIL AREAS IN THE WESTERN GULF REGION

Adapted Soil Areas, in the order of their importance: 1, Grand Prairie, 2. Rolling Red Plains soils, 3. High Plains (all in Oklahoma and Texas), 4. Edwards Plateau, 5. Blackland Prairie, and 6. Coast Prairie (the last three in Texas).
Natural Barriers from East to West: 1. Residual (acid) soils from sedimentary materials, 2. Timber, 3. Upland tall grass under moderately high rainfall, 4. Igneous or granitic (acid) soils, 5. Deep loose sands, and 6. Low rainfall coupled with high soil temperatures.

In the so-called virgin condition before the white man entered the region to live, the Blackland and Grand Prairies of Texas were principally areas of tall and midgrasses. These prairies no doubt presented a sight which few persons can picture clearly today. Probably in small and even in large areas the taller grasses were burned naturally or by the Indians and grazed rather closely by animals. If so, these areas under such treatment were mostly covered with the short bunch grasses and buffalo grass. Curly mesquite, another running grass, was too scattered to be of any importance here, but there is considerable evidence to show that buffalo grass was present throughout most of the areas of limy soils in the region.

Because of the intenseness and yearlong methods of grazing after the white man came to reside, the taller grasses were closely grazed and buffalo grass spread rapidly. Today buffalo grass may be found in fairly pure stands in many localities and is highly valued for pasture. In many sections, this grass produces large crops of seeds, and yields from sweepings with rough brooms have been as high as 150-200 pounds per acre. Today records of plantings of seed and transplantings of sod of buffalo grass show that it may be used to an advantage and at a low cost in both the uneroded and badly eroded shallow and deep soils of medium and heavy texture derived from the weathering of limy materials.

Parts of the Edwards Plateau should be considered as excellent for buffalo grass, but throughout a greater part of the plateau curly mesquite is the more important upland grass under the kind of grazing now carried on. Buffalo grass is next in importance but it generally is found in the more moist areas.

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1. Agronomist, Nursery Division, Western Gulf Region.

The Western Prairies and Rolling Plains soils once supported and were formed under a fairly dense cover of mixed grasses with the taller ones the most important under virgin conditions. But under the treatment these soon gave way to the short grasses, as buffalo, the gramas, and curly mesquite (the last only in Texas). Much of the acreage of heavy deep soils has been under cultivation for many years. Since the desire is for diversification and conservation there has been some movement to regrass some of this cultivated land. This is particularly true in wind-blown soil areas. Where lands have been allowed to naturally regrass the resulting vegetation has not always been of the desirable kind. It is believed that on the loams and clays a limited use of buffalo grass either alone or in a mixture can well be considered. However, failures to obtain stands may be the rule rather than the exception because of erratic rainfall and soil moisture which may prevent germination of seeds and survival of seedlings. Certainly the problems of individual areas should be studied before attempting large seedings. Local areas now free of buffalo grass should be tested.

The Coast Prairie once supported a dense stand of mixed tall grasses with a light stand of buffalo grass interspersed. Close grazing in localities has aided the spread of buffalo grass. In the heavy soils, on cultivated land, seedings and sodding should produce good stands if handled as a cultivated crop.

In the Rio Grande Plains the artificial seeding and sodding of buffalo grass is a doubtful practice even where moisture and soils favor its establishment because of the recurring droughts and consistently high soil temperatures.

The Acid Soils

The acid soils throughout the Western Gulf Region are quite free of buffalo grass, even though widely separated local grass areas are not uncommon. In general these soils were occupied by the mixed hardwoods and pine and by hardwoods, and include nearly all of Arkansas and Louisiana and a sizable strip on the eastern sides of Oklahoma and Texas. The geologic origin of the parent materials forming these soils may be fairly distinct as to age. The presence of shade coupled with the growth of timber in this high or moderately high rainfall where leaching is rapid has prevented the encroachment of buffalo grass. Even where limestone outcrops and alkaline soils are formed under tall grass there is no buffalo grass. However, small islands of this grass are occasionally found on the middle and lower floodplains of some of the rivers; e.g., Red, Sabine and Neches, that have a part of their drainage from lands where buffalo grass thrives. Seeds brought by flood waters from the upper reaches of these rivers probably have been the source of such local areas. The soils of such areas are neutral or either slightly acid or slightly basic because they were formed from flood transplanted soil materials of the central and western Oklahoma and Texas uplands.

Eastern Prairie

West of the timber country and running the full length of it through Oklahoma and Texas, there is a narrow to broad natural grassland known as the eastern prairie or tall grass prairie. In Oklahoma big bluestem is the most important grass in this prairie while farther south in Texas little bluestem becomes more important. The rainfall in this strip is modorately high and soil leaching may be slow or rapid, depending upon the subsoils. Much of this grassed strip has acid soils. In east central Texas these grade into black waxy alkaline to neutral soils, derived from marl or limestone, of the blackland prairie. Wherever the topsoils or subsoils are alkaline, buffalo grass was usually present in the original cover but was not important until intensive grazing reduced the stature and the density of the tall grasses, after which buffalo grass spread rapidly. Today many pastures on soils derived from chalk, marl and limy clays are mainly covered with buffalo grass.

Cross Timbers

West of this prairie strip, but not forming a continuous body is a large irregular timbered area called the Cross Timbers. Tall grass openings are not infrequent in the Cross Timbers. Because the soils are generally sandy and some of the subsoils rather impervious to water, under these two extremes buffalo grass will not grow extensively. However, areas of limy soils are occasionally found in the Cross Timbers, and there buffalo grass may also be found, but is nowhere common.

None of the soils derived from igneous soil materials have buffalo grass growing on them and none may be considered useful for this grass unless they are mixed with other soil materials such as the Permian Red beds.

Other Areas

Scattered throughout western Oklahoma and Texas, either along the larger streams, or elsewhere, are large areas of deep or loose sands which have, or had a cover of tall grasses, or, tall grasses mixed with shrubs (shinnery or sagebrush). Buffalo grass is not common in these areas, although it may be found locally.

In Southwest Texas where low rainfall and high soil and air temperatures predominate during much of the growing season, the bunch grasses predominate. In the water retaining basins and flats the salt-tolerant grasses are most common. Buffalo grass is to be found only locally and in the favorable sites.

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TWO NEW OPERATING DISTRICTS IN OKLAHOMA

The U. S. Department of Agriculture and the supervisors of the Grady County and Okfuskee Soil Conservation Districts of Oklahoma have entered into memoranda of understanding. This action increased to 23 the operating districts in Oklahoma, but there remained 10 organized districts which had not entered into memoranda with the Department.

The Grady County District, which covers 368,600 acres in Grady County, has headquarters at Rush Springs. Supervisors' headquarters for the Okfuskee District are at Okemah. This district comprises 335,427 acres in Okfuskee County.

On January 31, Leo S. Wortman, state coordinator for the Soil Conservation Service in Oklahoma, reported that 1,787 farmers operating 326,687 acres had entered into agreement with 21 of the State's soil conservation districts. In addition, 50 farm plans had been completed and presented to the farmers for signature. These plans covered 6,990 acres. There were 303 farm plans, for 76,315 acres, in process of preparation.

Wortman's compilation showed that 4,707 persons had made application to the district supervisors for assistance in conserving their soil, water, timber and wildlife resources.

Conservation surveys had been completed on 3,289,417 acres on January 31.

In January the districts sponsored 26 educational meetings, which had a total attendance of 831 persons. Ten meetings were held with groups of farmers to discuss planning and program execution.

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DISTRICT PROGRESS IN LOUISIANA

The eight operating Louisiana soil conservation districts had entered into agreements with 1,209 farmers on Feburary 1, according to a report compiled by H. B. Martin, acting state coordinator for the Soil Conservation Service. These agreements covered 227,332 acres. At the time of the report, 136 additional farm plans, for 37,817 acres, were in process of planning.

The supervisors of the Louisiana districts have received 3,310 requests for assistance from farmers who control 676,606 acres. Conservation surveys have been completed on 713,758 acres.

Six educational meetings, with an attendance of 384 persons, were held in the districts in January.

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FERTILIZATION--AN AID IN PASTURE DEVELOPMENT

By W. M. Nixon
Associate Agronomist

The economic feasibility of applying complete treatment, including adequate fertilization, to pastures in the Coastal Plains sections of the Western Gulf Region is strikingly illustrated by results obtained on a series of demonstration plots established in this section.

Thirty-two demonstration pastures, each 5 acres in size, were established during 1938 and 1939 in Service demonstration project areas of the Coastal Plains. Complete fertilization and seeding were applied on these pastures.

An outstanding result of complete treatment was the tremendous increase in carrying capacity on 11 of the demonstration plots established at Mount Pleasant and Nacogdoches. On four of the plots the carrying capacity was doubled and increased by one-third on the other 7.

Although results from other plots have not been as outstanding, all are responding rapidly to treatment and are serving a useful purpose in demonstrating to the farmer that a carefully developed pasture is an economic asset.

Thousands of acres of badly eroded land which could not be profitably cultivated have been converted to pasture in the humid sections of the Western Gulf Region. The first job to be completed on this land was the establishment of an adequate vegetative cover to prevent the loss of additional topsoil.

On most of these areas, Bermuda grass was used to bind and hold the soil. But the establishment of a base grass on permanent pasture land does not mark the end of the job.

Bermuda grass is an excellent erosion control plant, the best base pasture grass ever used in the South and is readily eaten by livestock during a large part of the year.

But a pasture is not yielding its greatest potential return if the only forage provided is Bermuda grass. The profitable pasture contains a well balanced mixture of grasses and winter and summer legumes. Soils on most of the areas converted to pasture generally lack the proper amounts of nitrogen and phosphorus. Proper mixtures of grasses and legumes cannot be established on such areas without the application of barnyard manure or commercial fertilizer to supply the lacking nitrogen and phosphorus.

Some interesting observations citing the value of fertilization of pastures are contained in the booklet, "Green Acres" issued by the National Fertilizer Association, some of which follow:

"Ten tests with dairy farmers in Louisiana for two years averaged 35.9 percent more milk and 37.4 percent greater returns for fertilized pastures than for unfertilized halves of the same pastures.

Depleted pasture soil at Hope, Arkansas, that produced only 150 pounds of beef per acre has been improved by a Bermuda grass and legume seeding, fertilizer treatment and good management for six years until it now produces 589 pounds of beef per acre.

Fertilized pastures at Hammond, Louisiana, produced only 39.4 percent more feed per acre, but contained 80.9 percent more phosphorus than the same kind of unfertilized grass. Fertilized lespedeza at the station pro- two to three times as much hay containing three to five times as much phosphorus as untreated lespedeza.

In Alabama experiments have shown that the production of pastures can be more than doubled by the use of lime and fertilizer with a profit of $3.50 per acre on the fertilizer applied. Over 2,000 pasture demonstrations have been started in that state during the last two years.

In a Virginia experiment 76 pounds of beef were produced per acre without fertilizers or lime and 161 pounds per acre were produced with a nitrogen-superphosphate-lime treatment.

An experiment in Kentucky has shown that the production of beef per acre can be trebled by the use of superphosphate alone, and the cost reduced one-third. The unfertilized land produced only 46 pounds of beef per acre at a cost of 9.6 cents per pound while the fertilized land produced 152 pounds of beef per acre at a cost of 3.1 cents per pound.

Seven years' results at the Georgia Coastal Plains Experiment Station, show that unfertilized carpet grass pasture produced only 65 pounds of beef per acre, while carpet grass and legume pasture fertilized with 600 pounds of complete fertilizer produced 291 pounds of beef per acre. The cost of producing this extra 226 pounds of beef was only 4.5 cents per pound, at present fertilizer costs."

Inasmuch as well developed and maintained pastures produce the cheapest feed that can be provided for livestock, and afford erosion control and profitable utilization of land, every effort should be made to insure the continuation of pasture development work on a basis which will yield the farmer a profit on his investment and which will protect and keep the land in the use for which it is best suited.

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NEW FILM STRIPS, MOTION PICTURES AVAILABLE FROM REGIONAL FILM LIBRARY

By Elvin W. Jenkins
Photographer

Film Strips

Three new film strips, "Wildlife Management Through Soil Conservation in the Northeast," "Farm Woods, A Safe Crop for Steep Land," and "Corn Belt Farmers Fight Erosion," have been added to the regional film library and are available to field work units on a long time loan basis. Similarity of practices depicted with those used in this region make them adaptable. The addition of these three film strips increases to 18 the number of strips available for loan from the regional library.

Requests for film strips should be addressed to the Chief, Regional Division of Information, Fort Worth. All requests should list the serial numbers of film strips desired as well as the titles. Requests for film strips in reasonable quantities normally can be filled within three days. If as many as ten prints of any one film strip are desired, the Regional Division of Information will prepare a requisition, based on the written request, and return it for signature to the requesting unit. Delivery of requisitioned film strips normally will require from 30 to 45 days.

The titles and numbers of film strips available from the regional film library follow:

Title	No.	Title	No.
"Lime In Soil Conservation" ...	179	"Soil Erosion, A National Menace".....	244
"Stop Gullies--Save Your Farm".	341	"Contour Furrows"	438
"Strip Cropping"	439	"Farming Practices That Conserve Soil and Water"	442
"Control of Water Erosion In The Central Great Plains"	455	"Soil Erosion and Its Control in Ark., La., and Texas"	458
"Soil Erosion and Its Control In Upper Mississippi Valley ..	463	"Soil Erosion in the United States"	467
"Gully Prevention and Control"	504	"Soil Erosion--Whose Problem?" .	523
"Soil and Water Conservation in Arkansas"	524	"Soil Conservation Benefits Wildlife"	558

Title	No.	Title	No.
"Establishment and Maintenance of Grassed Waterways"	559	"Wildlife Management Through Soil Conservation in the Northeast"..	562
"Farm Woods, A Safe Crop for Steep Land".....	570	"Corn Belt Farmers Fight Erosion"	572

Motion Pictures

Seven sound motion pictures, 16 m.m. are in the Regional Film Library and are available for short loan periods to field units, other than CCC camps. Camps may secure film through Army officials.

The pictures available are: "Muddy Waters," "Rain on the Plains," "Grassland," "A.B.C. of Forestry," "Forest Fires or Game?" "The Life of Plants," and "The River."

All of these are in sound stock only and cannot be used in silent projectors.

Requests should be addressed to the Chief, Regional Division of Information, Fort Worth.

There are two 16 m.m. sound motion picture projectors assigned to the Regional Office which are available for short loan periods to regional field units. At the present time there is a heavy demand for use of motion picture equipment, a situation which makes it advisable for units requesting film or equipment to list first and second choices when ordering film, to make requests several weeks in advance of date it is needed and to list alternate dates for use of equipment.

CCC camps desiring use of motion pictures should route requests to the Army Corps Area having supervision over the camp. Requests for film for use in a CCC camp should not be directed to the Service inasmuch as most camps in the region already have motion picture equipment and can obtain films dealing with soil and water conservation and other agricultural topics from the Army's CCC libraries.

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MEMORANDA SIGNED WITH TWO ARKANSAS DISTRICTS

The supervisors of Moorefield Soil Conservation District and of King's River-Long Creek Soil Conservation District of Arkansas entered into memoranda of understanding with the United States Department of Agriculture in February. The execution of these memoranda increased to 16 the number of operating soil conservation districts in Arkansas.

Moorefield District, with supervisors' headquarters at Batesville, covers 300,000 acres in parts of Independence, Lawrence and Sharp Counties. King's River-Long Creek District, which has headquarters at Green Forest, comprises 350,000 acres in parts of Boone and Carroll Counties.

As of January 31, the 14 operating soil conservation districts in Arkansas had entered into agreements with 3,394 farmers who control 475,103 acres. In addition, 134 farm plans, covering 17,851 acres, had been completed and presented to the farm operators for signature. At the close of January, 168 farm plans representing 25,561 acres, were being prepared.

Glenn E. Riddell, state coordinator for the Soil Conservation Service in Arkansas, reported that 14 Arkansas districts had received 6,251 applications from farmers for assistance in establishing soil and water conservation and good land use practices.

Conservation surveys had been completed on 2,659,263 acres in the Arkansas districts.

The state coordinator reported that 70 educational meetings, which drew an attendance of 2,520 persons, were conducted in the districts during January. In addition, seven meetings were held with groups of farmers to discuss planning and program execution.

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NATIONAL DISTRICT PROGRESS

A total of 164 Soil Conservation districts, in 25 states, had entered into memoranda of understanding with the U. S. Department of Agriculture on February 1, according to a report made by J. Phil Campbell, assistant chief of the Soil Conservation Service in charge of Cooperative Relations and Information.

At that time, 221 districts covering 123,384,707 acres had been organized by landowners in 33 states.

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CONSERVATION AND CURRENT PERIODICALS

Prepared by Virginia Burke,
Regional Librarian

Persons who wish a better understanding of the part libraries can play in conservation work will find interesting the article entitled "Libraries and Conservation" in the February issue of the American Library Association Bulletin.

H. M. Bell, Range Examiner, has an article in the February number of The Cattlemen under the title "Profits from Range Management."

"Locked the Door in Time" is an article by Charles G. Webb, assistant information specialist, in the March issue of the Progressive Farmer.

The foregoing publications are on file in the Regional Library.

The Regional Librarian wishes to keep an up-to-date record of all articles published which have been written by regional office and field personnel. Personnel are requested to notify the library of the publication of any article.

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U.S. DEPARTMENT OF AGRICULTURE
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